TWO NEW SPECIES OF THE GENUS *IPHIGENIA* KUNTH (LILIACEAE) FROM WESTERN GHATS (INDIA)

Iphigenia magnifica Ansari et Rolla Rao *sp. nov.*

Affinis *I. indica* (Linn.) A. Gray, sed statu majore, caule ramoso, foliis numerosoribus, inflorescentiis pluri floribus, filamentis semper glabris, fructibus camparande minoribus differt; affinis *I. robusta* Bak., sed caule ramoso, foliis longioribus, antheris sine apiculis, filamentis in parte inferioribus, crassibus, capsulis majoribus differt.

Similar to *I. indica* (Linn.) A Gray in having dark coloured flowers, but differs in its size, branching stem, greater number of leaves, longer ascending pedicels; inflorescence many flowered, filaments always glabrous and fruits comparatively smaller. It also differs from *I. robusta* Bak. in having branching stem, longer leaves, anthers without apicule and filaments thickened in the lower region and capsule of larger size.

An erect glabrous herb, reaching ± 60 cm in height. Corms 2.5 × 2.0 cm, sub-globose, narrowed into a short neck with membranous tunics. Stem generally branching. Leaves many, 14-25 × 0.5-1.2 cm, grass like, linear-lanceolate, acute base long sheathing. Inflorescence 4-many flowered raceme. Pedicels 2.5-5.5 cm long; grooved, ascending, reaching upto 9.0 cm long in fruiting stage. Bracts ± 5 cm long, leafy linear or linear-lanceolate. Flowers dark brownish purple; perianth lobes 6, 1-2 × 0.2 cm, linear subulate or elliptically linear, 1-3 nerved, acute at apex, clawed or not at the base spreading and later reflexed. Stamens 4-6 mm long, purple; anthers 1.5-2.0 × 1.25-1.5 mm, oblong-ovate, dark purple, without any apicule, pollen yellow; filaments 2.5-4 mm long, always glabrous, swollen either in the middle or towards base. Ovary 3-4 mm long, green, oblong-obovate; styles 3, 1.5-2.5 mm long, united in the lower half, recurved in the upper half to form 3 separate stigmas. Capsule 0.8-1.75 × 0.5-1 cm, sub-globose or elliptically oblong, trilocular, 3-valved, many-seeded; seeds 3 × 2.5 mm, sub-globose, brown with a white or pale-brown conspicuous band of raphe [Plate I, figs. 1-6b].

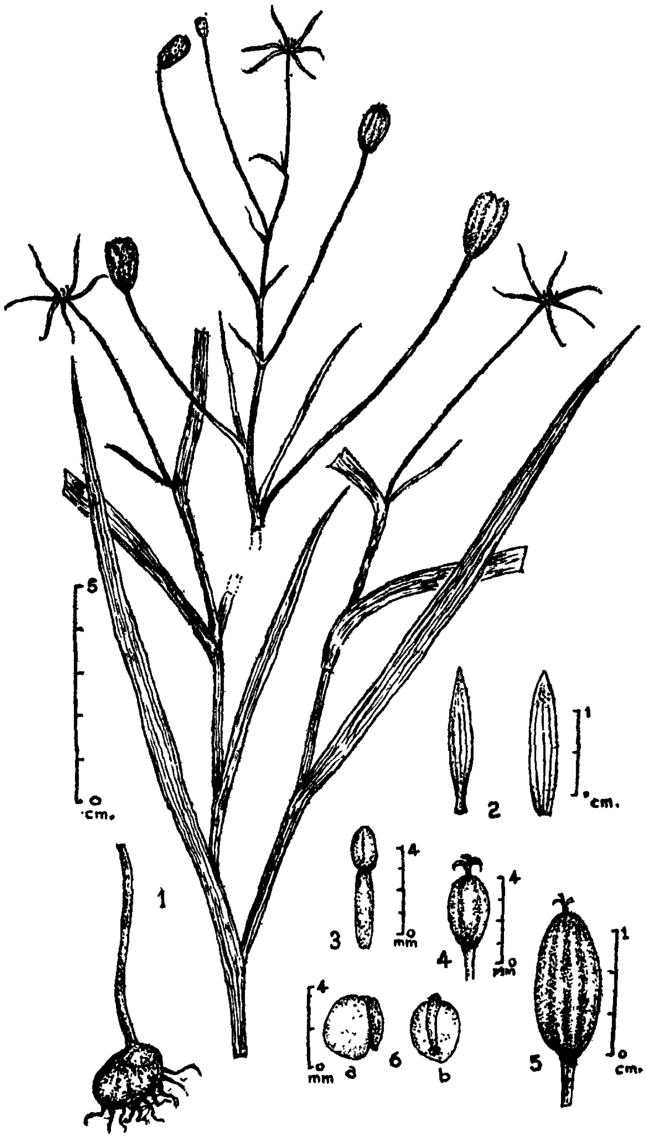

Plate I. *Iphigenia magnifica* Ans. et Rolla

Figs. 1-6b : 1. Whole plant. 2. Perianth segments. 3. Stamen. 4. Ovary with styles and stigma. 5. Capsule. 6a. Lateral view. 6b. Front view of seed, showing the raphe.

Flowers: September-October. *Fruits*: October.—Under cultivation the plant may continue to flower beyond October also.

The holotype (*Pataskar* 118218A) was collected from Dhule in Dhule district of

Maharashtra State on 5-10-1969 and is deposited in *CAL*. The isotype *Pataskar* 118218 B-C are deposited in *BSI*, D in *CAL* and E in *K*.

The following paratypes are deposited in *BSI*: *Ansari* 104945 collected from Dhule in Dhule district on 8-9-1970; *Ansari* 104948, from Matheran in Kolaba district on 30-7-1973, both from Maharashtra State.

The description of *I. indica* (Linn.) A. Gray provided in earlier literature is broad-based and may include the present species to some extent. However, the authors are of the firm opinion that a true *I. indica* as is normally understood, is comparatively a small, generally unbranched herb having not more than 2-3 flowers with shorter pedicels (0.6-2.5 cm long), filaments hairy (hairs falling off later) fruits larger, oblong or columnar. In fact both *I. indica* and the present new species grow under the same climatic and ecological conditions but they are considered as quite distinct. The flowering periods of both these species are different. The former flowers during June and finishes its life-cycle by July and the later (new species), by September, completing its life-cycle by October end.

Iphigenia sahyadrica Ansari et Rolla Rao *sp. nov.*

Affinis *I. pallida* Bak. et *I. stellata* Blatt. sed cormis minoribus, foliis paucioribus, inflorescentiis plerique bifloris corymbiformis, pedicellis ad carinam interdum papillosis, perianthii segmentis minoribus angustioribisque solanaceoviolaceis, capsulis minoribus obovatis differt.

Similar to *I. pallida* Bak. and *I. stellata* Blatt. in having light-coloured flowers but differs in its small corms, fewer leaves, inflorescence mostly a 2-flowered corymb, pedicels at times dotted with papillae on the ridges; perianth lobes smaller and narrower, solanaceous-violet in colour; capsule small, obovate and seeds with thread-like raphe.

A small erect glabrous herb, 8-10 cm in height. Corms 8-9 × 7-8 mm, globose, narrowed into a short underground neck with membranous tunics. Stem solitary, small. Leaves 4-12 × 0.2-0.3 cm, linear or linear-lanceolate, acute, grass like, sub-opposite or alternate, 3-4 in number, with sheathing base. Inflorescence mostly a 2-flowered corymb; pedicels 2-2.7 cm long, rarely reaching 3 cm in fruits, ascending, grooved, ridges sometimes dotted with papillae (seen in fresh specimens). Bracts 1-2 cm long, linear, leafy. Flower solanaceous-violet; perianth lobes 6, 6-8 × 1.5-2 mm, 5-7 nerved, linear-elliptic or elliptically oblanceolate, spreading. Stamens 2.5-3 mm long, violet coloured; anthers 1 × 1 mm, almost globose; filaments ± 2 mm long, glabrous, terete, broadening towards base. Ovary 1.5 × 1 mm, obovate, green; styles 3, 1 mm long, shortly united at base, free and reflexed above with 3 stigmas. Capsule 1 × 0.6 cm, obovate, small, few-seeded. Seeds ± 2 × 1.5 mm, sub-globose or ovoid, compressed on sides, brown with thread like reduced raphe. (Plate II, figs. 1-8).

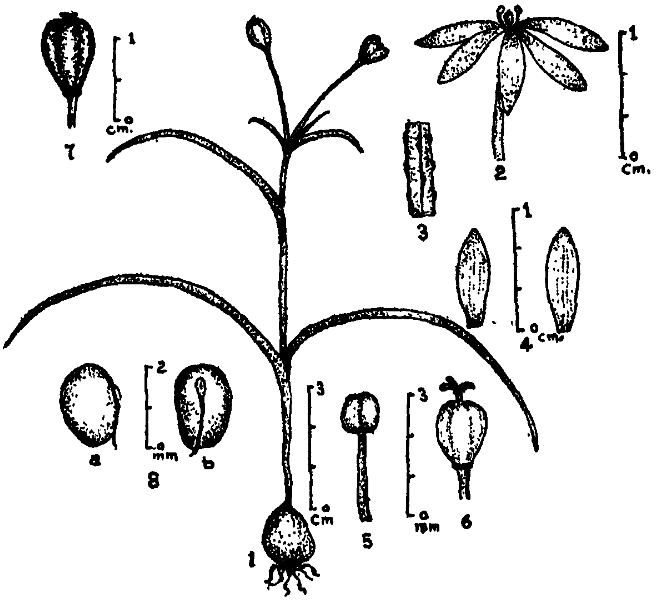

Plate II. *Iphigenia sahyadrica* Ans. et Rolla

Figs. 1-8 : 1. Whole plant. 2. Flower. 3. Part of a pedicel showing papillae. 4. Perianth lobes. 5. Stamen. 6. Ovary with style & stigma. 7. Capsule. 8a. Lateral view of seed with thread-like raphe. 8b. Front view of seed with thread-like raphe.

Flowers: August. *Fruits*: August-September.

Habitat: In grassy meadows and on sandy soil.

The holotype (*Raghavan* 90209A) was collected from Hulical in Shimoga district, Karnataka State on 25-8-1963 and is deposited in *CAL*. The isotypes *Raghavan* 90209B in *BSI*, C in *K*.

The following are the paratypes: *Ansari* 104952 A-B collected from Hulical in Shimoga district on 24-8-1973; *Talbot* 1661 A, collected from Halial in North Kanara on 26-6-1888 in *BSI*; *Ansari* 104952 C and *Talbot* 1661 B collected from the places mentioned above are deposited in *CAL*.

Following are the distinguishing features of the new species when compared with its allied species:

Characters	*I. sahyadrica sp. nov.*	*I. stellata*	*I. pallida*
Height	Upto 10 cm	Upto 15 cm	Upto 25 cm
Leaves	3-4	4-6	6-8
Inflorescence	2-flowered corymb	generally 3-7 flowered short raceme	generally 3-5 flowered short raceme
Pedicels	2-2.7 cm long	Upto 5.5 cm long	Upto 3 cm long
Flowers	Solanaceous-violet	Bright pinkish	White or pale pinkish
Perianth lobes	6-8 × 1.5-2 mm, 5-7 nerved, linear-elliptic or elliptic-oblanceolate	6-10 × 3-4 mm, 7-9 nerved, broadly elliptic or elliptic-ovate	6-17 × 2-3 mm, 5-7 nerved, linear-subulate or elliptically linear
Stamens	2.5-3 mm long	3.5-4 mm long	5 mm long
Capsules	Obovate	Generally sub-globose	Generally ellipsoid
Seeds	With thread like raphe	With thread like raphe	With well-developed mass of oval raphe
Flowering period	Late July to August	July	Early June
+ Colchicine content	±1%	1.2-2%	0.5-0.7%

+ The colchicine contents have been worked out in collaboration with National Chemical Laboratory, Pune

This new species is distinct also from *Iphigenia novae-zelandiae* Bak. (from New Zealand) which is reported to be having 2-3 short leaves, inflorescence uni-flowered having white flowers (perianth 4.5-6 mm long).

The genus *Iphigenia*, of late, has come into prominence due to its colchicine content. Although the seeds of *I. magnifica* sp. nov. has almost similar amount of colchicine as that of *I. indica* (0.5-0.7%), it has an advantage of bearing greater number of fruits (15-20, at times 30) and seeds than the other known species of the genus, thus providing a good source of considerable raw material (seeds) for large scale production of colchicine along with seeds of *I. stellata* Blatt. which yields the highest percentage of colchicine (1.2-2%).

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